

Application Serial No. 10/585,289
Amendment after Final Rejection of January 30, 2009
Response to Office Action of October 30, 2008

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1.(Previously Presented) A composite material comprising:

a fiber fabric; and

a matrix phase adhered to the fiber fabric,

wherein the fiber fabric comprises:

main constitutional fibers; and

auxiliary fibers having characteristics that compensate for changed characteristics of the main constitutional fibers when the main constitutional fibers are exposed to a high temperature atmosphere, wherein the main constitutional fibers and auxiliary fibers are stranded together.

2. (Original) The composite material according to claim 1, wherein the auxiliary fibers are included in the fiber fabric in such a proportion that residual stress that acts on the matrix phase and is caused by differences in thermal elongation between the fiber fabric and the matrix phase remains less than a breaking stress of the matrix phase.

3. (Original) The composite material according to claim 1, wherein the auxiliary fibers are included in the fiber fabric in such a proportion that stress during use that acts on the matrix phase and is caused by differences in thermal elongation between the fiber fabric and the matrix phase remains less than a breaking stress of the matrix phase.

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4. (Original) The composite material according to claim 1, wherein the main constitutional fibers are formed from any one of silicon carbide, carbon, silicon nitride, silicon oxide, aluminum oxide, YAG, and a heat resistant metal.

5. (Original) The composite material according to claim 1, wherein the auxiliary fibers have a different composition from that of the main constitutional fibers and are formed from any one of silicon carbide, carbon, silicon nitride, silicon oxide, aluminum oxide, YAG, and a heat resistant metal.

6. (Original) The composite material according to claim 1, wherein the fiber fabric includes a plurality of different types of the auxiliary fibers that each have a different composition.

7. (Original) The composite material according to claim 1, wherein the matrix phase is formed from any one of silicon carbide, carbon, zirconium carbide, silicon nitride, silicon oxide, aluminum oxide, zirconium oxide, hafnium oxide, YAG, and a heat resistant metal.

8. (Original) The composite material according to claim 1, wherein there are provided a plurality of different types of the matrix phase that each have a different composition.

9. (Original) The composite material according to claim 1, wherein, when the main

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constitutional fibers are formed from silicon carbide, the auxiliary fibers are formed from carbon, and the matrix phase is formed from silicon carbide, the mixture proportion of the auxiliary fibers relative to the main constitutional fibers is less than 90%.

10. (Original) The composite material according to claim 1, wherein the auxiliary fibers are included in a predetermined density distribution in the fiber fabric.

11. (Original) The composite material according to claim 10, wherein the density distribution of the auxiliary fibers in the fiber fabric gradually changes in a plate thickness direction.

12. (Previously Presented) A method of producing a composite material comprised of a fiber fabric and a matrix phase adhered to the fiber fabric, comprising the steps of:

forming the fiber fabric by stranding together main constitutional fibers and auxiliary fibers, the auxiliary fibers having characteristics that compensate for changed characteristics of the main constitutional fibers when the main constitutional fibers are exposed to a high temperature atmosphere; and

adhering the matrix phase onto the fiber fabric.

13. (Previously Presented) The method of producing a composite material according to claim 12, wherein at least a portion of the matrix phase is formed by a CVI method.

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14. (Previously Presented) The method of producing a composite material according to claim 12, wherein at least a portion of the matrix phase is formed by a PIP method.

15. (Previously Presented) The method of producing a composite material according to claim 12, wherein at least a portion of the matrix phase is formed by a slurry method.

16. (Previously Presented) The method of producing a composite material according to claim 12, wherein at least a portion of the matrix phase is formed by a reactive sintering method.

17. (Previously Presented) The method of producing a composite material according to claim 12, wherein the fiber fabric is formed after combining a bundle of the main constitutional fibers together with a bundle of the auxiliary fibers so as to form a strand.

18. (Previously Presented) The method of producing a composite material according to claim 12, wherein the fiber fabric is formed after dispersing and then blending together the main constitutional fibers and the auxiliary fibers so as to form a strand.

19. (Previously Presented) The method of producing a composite material according to claim 12, wherein the fiber fabric is formed by arranging the bundle of the main constitutional fibers and the bundle of the auxiliary fibers in predetermined proportions.

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20. (Previously Presented) The method of producing a composite material according to claim 12, wherein the fiber fabric is formed by separating the bundle of the main constitutional fibers and the bundle of the auxiliary fibers into threads that have a predetermined thickness.

21. (Previously Presented) The method of producing a composite material of claim 12, wherein stranding together of the main constitution of fibers and auxiliary fibers forms strands.

22. (Previously Presented) The composite material of claim 1, wherein the main constitutional fibers and auxiliary fibers are stranded together in strands.

23. (Previously Presented) The composite material of claim 22, wherein a bundle of the main constitutional fibers is combined with a bundle of the auxiliary fibers in a strand.

24. (Previously Presented) The composite material of claim 22, wherein the main constitutional fibers and the auxiliary fibers are blended together in a strand.